

0/190

SEQUENCE LISTING

<110> Rao, Gururaj A.
Roesler, Keith

<120> Proteins With Enhanced Levels of
Essential Amino Acids

<130> 0571R2

<140> 09/311,689

<141> 1999-05-13

<150> 08/740,682

<151> 1996-11-01

<150> PCT/US97/20441

<151> 1997-10-31

<160> 74

<170> FastSEQ for Windows Version 3.0

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<211> 249

<212> DNA

<213> Hordeum vulgare

<220>

<221> CDS

<222> (1) ... (249)

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agt tca gtg gag aag aag ccg gag gga gtg aac acc ggt gct ggt gac	48
Ser Ser Val Glu Lys Lys Pro Glu Gly Val Asn Thr Gly Ala Gly Asp	
1 5 10 15	
cgt cac aac ctg aag aca gag tgg cca gag ttg gtg ggg aaa tcg gtg	96
Arg His Asn Leu Lys Thr Glu Trp Pro Glu Leu Val Gly Lys Ser Val	
20 25 30	
gag gag gcc aag aag gtg att ctg cag gac aag cca gag gcg caa atc	144
Glu Glu Ala Lys Lys Val Ile Leu Gln Asp Lys Pro Glu Ala Gln Ile	
35 40 45	
ata gtt cta ccg gtg ggg aca att gtg acc atg gaa tat cgg atc gac	192
Ile Val Leu Pro Val Gly Thr Ile Val Thr Met Glu Tyr Arg Ile Asp	
50 55 60	
cgc gtc cgc ctc ttt gtc gat aaa ctc gac aac att gcc cag gtc ccc	240
Arg Val Arg Leu Phe Val Asp Lys Leu Asp Asn Ile Ala Gln Val Pro	
65 70 75 80	
agg gtc ggc	249

Arg Val Gly

<210> 2
<211> 83
<212> PRT
<213> Hordeum vulgare

<400> 2
Ser Ser Val Glu Lys Lys Pro Glu Gly Val Asn Thr Gly Ala Gly Asp
1 5 10 15
Arg His Asn Leu Lys Thr Glu Trp Pro Glu Leu Val Gly Lys Ser Val
20 25 30
Glu Glu Ala Lys Lys Val Ile Leu Gln Asp Lys Pro Glu Ala Gln Ile
35 40 45
Ile Val Leu Pro Val Gly Thr Ile Val Thr Met Glu Tyr Arg Ile Asp
50 55 60
Arg Val Arg Leu Phe Val Asp Lys Leu Asp Asn Ile Ala Gln Val Pro
65 70 75 80
Arg Val Gly

<210> 3
<211> 198
<212> DNA
<213> Hordeum vulgare

<220>
<221> CDS
<222> (1) ... (198)

<400> 3
atg aac ctg aag aca gag tgg cca gag ttg gtg ggg aaa tcg gtg gag 48
Met Asn Leu Lys Thr Glu Trp Pro Glu Leu Val Gly Lys Ser Val Glu
1 5 10 15
gag gcc aag aag gtg att ctg cag gac aag cca gag gcg caa atc ata 96
Glu Ala Lys Lys Val Ile Leu Gln Asp Lys Pro Glu Ala Gln Ile Ile
20 25 30
gtt cta ccg gtg ggg aca att gtg acc atg gaa tat cgg atc gac cgc 144
Val Leu Pro Val Gly Thr Ile Val Thr Met Glu Tyr Arg Ile Asp Arg
35 40 45
gtc cgc ctc ttt gtc gat aaa ctc gac aac att gcc cag gtc ccc agg 192
Val Arg Leu Phe Val Asp Lys Leu Asp Asn Ile Ala Gln Val Pro Arg
50 55 60
gtc ggc 198
Val Gly
65

<210> 4
<211> 66
<212> PRT

<213> Hordeum vulgare

<400> 4

Met	Asn	Leu	Lys	Thr	Glu	Trp	Pro	Glu	Leu	Val	Gly	Lys	Ser	Val	Glu
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Glu	Ala	Lys	Lys	Val	Ile	Leu	Gln	Asp	Lys	Pro	Glu	Ala	Gln	Ile	Ile
			20					25					30		
Val	Leu	Pro	Val	Gly	Thr	Ile	Val	Thr	Met	Glu	Tyr	Arg	Ile	Asp	Arg
		35					40					45			
Val	Arg	Leu	Phe	Val	Asp	Lys	Leu	Asp	Asn	Ile	Ala	Gln	Val	Pro	Arg
	50					55					60				
Val	Gly														
65															

<210> 5

<211> 198

<212> DNA

<213> Hordeum vulgare

<220>

<221> CDS

<222> (1)...(198)

<400> 5

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Met	Lys	Leu	Lys	Thr	Glu	Trp	Pro	Glu	Leu	Val	Gly	Lys	Ser	Val	Glu	
1				5					10					15		
aaa	gcc	aag	aag	gtg	atc	ctg	aag	gac	aag	cca	gag	gcg	caa	atc	ata	96
Lys	Ala	Lys	Lys	Val	Ile	Leu	Lys	Asp	Lys	Pro	Glu	Ala	Gln	Ile	Ile	
			20					25					30			
gtt	ctg	ccg	gtt	ggg	aca	aag	gtg	acg	aag	gaa	tat	aag	atc	gac	cgc	144
Val	Leu	Pro	Val	Gly	Thr	Lys	Val	Thr	Lys	Glu	Tyr	Lys	Ile	Asp	Arg	
		35					40					45				
gtc	aag	ctc	ttt	gtg	gat	aaa	aag	gac	aac	atc	gcg	cag	gtc	ccc	agg	192
Val	Lys	Leu	Phe	Val	Asp	Lys	Lys	Asp	Asn	Ile	Ala	Gln	Val	Pro	Arg	
	50					55					60					
gtc	ggc															198
Val	Gly															
65																

<210> 6

<211> 66

<212> PRT

<213> Hordeum vulgare

<400> 6

Met	Lys	Leu	Lys	Thr	Glu	Trp	Pro	Glu	Leu	Val	Gly	Lys	Ser	Val	Glu
1				5					10					15	
Lys	Ala	Lys	Lys	Val	Ile	Leu	Lys	Asp	Lys	Pro	Glu	Ala	Gln	Ile	Ile
			20					25					30		
Val	Leu	Pro	Val	Gly	Thr	Lys	Val	Thr	Lys	Glu	Tyr	Lys	Ile	Asp	Arg
		35					40					45			

Val Lys Leu Phe Val Asp Lys Lys Asp Asn Ile Ala Gln Val Pro Arg
 50 55 60
 Val Gly
 65

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 <211> 198
 <212> DNA
 <213> Hordeum vulgare

<220>
 <221> CDS
 <222> (1)...(198)

<400> 7
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 Met Lys Leu Lys Thr Glu Trp Pro Glu Leu Val Gly Lys Ser Val Glu
 1 5 10 15
 aaa gcc aag aag gtg atc ctg aag gac aag cca gag gcg caa atc ata 96
 Lys Ala Lys Lys Val Ile Leu Lys Asp Lys Pro Glu Ala Gln Ile Ile
 20 25 30
 gtt cta ccg gtt ggt aca aag gtg gcg aag gcc tat aag atc gac aag 144
 Val Leu Pro Val Gly Thr Lys Val Ala Lys Ala Tyr Lys Ile Asp Lys
 35 40 45
 gtc aag ctt ttt gtg gat aaa aag gac aac atc gcg cag gtc ccc agg 192
 Val Lys Leu Phe Val Asp Lys Lys Asp Asn Ile Ala Gln Val Pro Arg
 50 55 60
 gtc ggc 198
 Val Gly
 65

<210> 8
 <211> 66
 <212> PRT
 <213> Hordeum vulgare

<400> 8
 Met Lys Leu Lys Thr Glu Trp Pro Glu Leu Val Gly Lys Ser Val Glu
 1 5 10 15
 Lys Ala Lys Lys Val Ile Leu Lys Asp Lys Pro Glu Ala Gln Ile Ile
 20 25 30
 Val Leu Pro Val Gly Thr Lys Val Ala Lys Ala Tyr Lys Ile Asp Lys
 35 40 45
 Val Lys Leu Phe Val Asp Lys Lys Asp Asn Ile Ala Gln Val Pro Arg
 50 55 60
 Val Gly
 65

<210> 9
 <211> 198
 <212> DNA
 <213> Hordeum vulgare

<220>
 <221> CDS
 <222> (1)...(198)

<400> 9
 atg aag ctg aag aca gag tgg ccg gag ttg gtg ggg aaa tcg gtg gag 48
 Met Lys Leu Lys Thr Glu Trp Pro Glu Leu Val Gly Lys Ser Val Glu
 1 5 10 15
 aaa gcc aag aag gtg atc ctg aag gac aag cca gag gcg caa atc ata 96
 Lys Ala Lys Lys Val Ile Leu Lys Asp Lys Pro Glu Ala Gln Ile Ile
 20 25 30
 gtt cta ccg gtt ggt aca aag gtg ggt aag cat tat aag atc gac aag 144
 Val Leu Pro Val Gly Thr Lys Val Gly Lys His Tyr Lys Ile Asp Lys
 35 40 45
 gtc aag ctt ttt gtg gat aaa aag gac aac atc gcg cag gtc ccc agg 192
 Val Lys Leu Phe Val Asp Lys Lys Asp Asn Ile Ala Gln Val Pro Arg
 50 55 60
 gtc ggc 198
 Val Gly
 65

<210> 10
 <211> 66
 <212> PRT
 <213> Hordeum vulgare

<400> 10
 Met Lys Leu Lys Thr Glu Trp Pro Glu Leu Val Gly Lys Ser Val Glu
 1 5 10 15
 Lys Ala Lys Lys Val Ile Leu Lys Asp Lys Pro Glu Ala Gln Ile Ile
 20 25 30
 Val Leu Pro Val Gly Thr Lys Val Gly Lys His Tyr Lys Ile Asp Lys
 35 40 45
 Val Lys Leu Phe Val Asp Lys Lys Asp Asn Ile Ala Gln Val Pro Arg
 50 55 60
 Val Gly
 65

<210> 11
 <211> 252
 <212> DNA
 <213> Hordeum vulgare

<220>
 <221> CDS
 <222> (1)...(252)

<400> 11
 atg aag tcg gtg gag aag aaa ccg aag ggt gtg aag aca ggt gcg ggt 48
 Met Lys Ser Val Glu Lys Lys Pro Lys Gly Val Lys Thr Gly Ala Gly
 1 5 10 15

gac aag cat aag ctg aag aca gag tgg ccg gag ttg gtg ggg aaa tcg	96
Asp Lys His Lys Leu Lys Thr Glu Trp Pro Glu Leu Val Gly Lys Ser	
20 25 30	
gtg gag aaa gcc aag aag gtg atc ctg aag gac aag cca gag gcg caa	144
Val Glu Lys Ala Lys Lys Val Ile Leu Lys Asp Lys Pro Glu Ala Gln	
35 40 45	
atc ata gtt cta ccg gtt ggt aca aag gtg ggt aag cat tat aag atc	192
Ile Ile Val Leu Pro Val Gly Thr Lys Val Gly Lys His Tyr Lys Ile	
50 55 60	
gac aag gtc aag ctt ttt gtg gat aaa aag gac aac atc gcg cag gtc	240
Asp Lys Val Lys Leu Phe Val Asp Lys Lys Asp Asn Ile Ala Gln Val	
65 70 75 80	
ccc agg gtc ggc	252
Pro Arg Val Gly	

<210> 12
 <211> 84
 <212> PRT
 <213> Hordeum vulgare

<400> 12	
Met Lys Ser Val Glu Lys Lys Pro Lys Gly Val Lys Thr Gly Ala Gly	
1 5 10 15	
Asp Lys His Lys Leu Lys Thr Glu Trp Pro Glu Leu Val Gly Lys Ser	
20 25 30	
Val Glu Lys Ala Lys Lys Val Ile Leu Lys Asp Lys Pro Glu Ala Gln	
35 40 45	
Ile Ile Val Leu Pro Val Gly Thr Lys Val Gly Lys His Tyr Lys Ile	
50 55 60	
Asp Lys Val Lys Leu Phe Val Asp Lys Lys Asp Asn Ile Ala Gln Val	
65 70 75 80	
Pro Arg Val Gly	

<210> 13
 <211> 198
 <212> DNA
 <213> Hordeum vulgare

<220>
 <221> CDS
 <222> (1) ... (198)

<400> 13	
atg aag ctg aag aca gag tgg ccg gag ttg gtg ggg aaa tcg gtg gag	48
Met Lys Leu Lys Thr Glu Trp Pro Glu Leu Val Gly Lys Ser Val Glu	
1 5 10 15	
aaa gcc aag aag gtg atc ctg aag gac aag cca gag gcg caa atc ata	96
Lys Ala Lys Lys Val Ile Leu Lys Asp Lys Pro Glu Ala Gln Ile Ile	

	20	25	30	
gtt cta ccg gtt ggt aca aag gtg acg ggc gaa tac aag atc gac cgc				144
Val Leu Pro Val Gly Thr Lys Val Thr Gly Glu Tyr Lys Ile Asp Arg				
	35	40	45	
gtc aag ctt ttt gtg gat aaa aag gac aac atc gcg cag gtc ccc agg				192
Val Lys Leu Phe Val Asp Lys Lys Asp Asn Ile Ala Gln Val Pro Arg				
	50	55	60	
gtc ggc				198
Val Gly				
	65			

<210> 14
 <211> 66
 <212> PRT
 <213> Hordeum vulgare

	20	25	30	
Met Lys Leu Lys Thr Glu Trp Pro Glu Leu Val Gly Lys Ser Val Glu				
1	5	10	15	
Lys Ala Lys Lys Val Ile Leu Lys Asp Lys Pro Glu Ala Gln Ile Ile				
	20	25	30	
Val Leu Pro Val Gly Thr Lys Val Thr Gly Glu Tyr Lys Ile Asp Arg				
	35	40	45	
Val Lys Leu Phe Val Asp Lys Lys Asp Asn Ile Ala Gln Val Pro Arg				
	50	55	60	
Val Gly				
	65			

<210> 15
 <211> 201
 <212> DNA
 <213> Hordeum vulgare

<220>
 <221> CDS
 <222> (1)...(201)

	20	25	30	
atg gct aag atg aag aca acg tgg cct gag ctg gtg ggc aag acc gtg				48
Met Ala Lys Met Lys Thr Thr Trp Pro Glu Leu Val Gly Lys Thr Val				
1	5	10	15	
gag aaa gcc aag aag atg atc atg aag gac aag cca gag gcg aag atc				96
Glu Lys Ala Lys Lys Met Ile Met Lys Asp Lys Pro Glu Ala Lys Ile				
	20	25	30	
atg gtt ctg cca gtt ggg acc aaa gtg acc ggt gaa tgg aag atg gat				144
Met Val Leu Pro Val Gly Thr Lys Val Thr Gly Glu Trp Lys Met Asp				
	35	40	45	
cgc gtc aaa ctc tgg gtc gac aag aag gac aag atc gcc aag act ccg				192
Arg Val Lys Leu Trp Val Asp Lys Lys Asp Lys Ile Ala Lys Thr Pro				
	50	55	60	

aag gtc ggc
Lys Val Gly
65

201

<210> 16
<211> 67
<212> PRT
<213> Hordeum vulgare

<400> 16
Met Ala Lys Met Lys Thr Thr Trp Pro Glu Leu Val Gly Lys Thr Val
1 5 10 15
Glu Lys Ala Lys Lys Met Ile Met Lys Asp Lys Pro Glu Ala Lys Ile
20 25 30
Met Val Leu Pro Val Gly Thr Lys Val Thr Gly Glu Trp Lys Met Asp
35 40 45
Arg Val Lys Leu Trp Val Asp Lys Lys Asp Lys Ile Ala Lys Thr Pro
50 55 60
Lys Val Gly
65

<210> 17
<211> 201
<212> DNA
<213> Hordeum vulgare

<220>
<221> CDS
<222> (1)...(201)

<400> 17
atg gct aag atg aag aca acg tgg cct gag ctg gtg ggc aag acc gtg 48
Met Ala Lys Met Lys Thr Thr Trp Pro Glu Leu Val Gly Lys Thr Val
1 5 10 15
gag aaa gcc aag aag atg atc atg aag gac aag cca gag gcg aag atc 96
Glu Lys Ala Lys Lys Met Ile Met Lys Asp Lys Pro Glu Ala Lys Ile
20 25 30
atg gtt ctg cca gtt ggg acc aaa gtg acc ggt gaa tgg aag atg gat 144
Met Val Leu Pro Val Gly Thr Lys Val Thr Gly Glu Trp Lys Met Asp
35 40 45
cgc gtc cgc ctc tgg gtc gac aag aag gac aag atc gcc aag act ccg 192
Arg Val Arg Leu Trp Val Asp Lys Lys Asp Lys Ile Ala Lys Thr Pro
50 55 60
aag gtc ggc 201
Lys Val Gly
65

<210> 18
<211> 67
<212> PRT

<213> Hordeum vulgare

<400> 18

Met	Ala	Lys	Met	Lys	Thr	Thr	Trp	Pro	Glu	Leu	Val	Gly	Lys	Thr	Val
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Glu	Lys	Ala	Lys	Lys	Met	Ile	Met	Lys	Asp	Lys	Pro	Glu	Ala	Lys	Ile
			20					25					30		
Met	Val	Leu	Pro	Val	Gly	Thr	Lys	Val	Thr	Gly	Glu	Trp	Lys	Met	Asp
		35					40					45			
Arg	Val	Arg	Leu	Trp	Val	Asp	Lys	Lys	Asp	Lys	Ile	Ala	Lys	Thr	Pro
	50					55					60				
Lys	Val	Gly													
65															

<210> 19

<211> 201

<212> DNA

<213> Hordeum vulgare

<220>

<221> CDS

<222> (1) ... (201)

<400> 19

atg	gct	aag	atg	aag	tgc	acg	tgg	cct	gag	ctg	gtg	ggc	aag	acc	gtg	48
Met	Ala	Lys	Met	Lys	Cys	Thr	Trp	Pro	Glu	Leu	Val	Gly	Lys	Thr	Val	
1				5					10					15		
gag	aaa	gcc	aag	aag	atg	atc	atg	aag	gac	aag	cca	gag	gcg	aag	atc	96
Glu	Lys	Ala	Lys	Lys	Met	Ile	Met	Lys	Asp	Lys	Pro	Glu	Ala	Lys	Ile	
			20					25					30			
atg	gtt	ctg	cca	gtt	ggg	acc	aaa	gtg	acc	ggg	gaa	tgg	aag	atg	gat	144
Met	Val	Leu	Pro	Val	Gly	Thr	Lys	Val	Thr	Gly	Glu	Trp	Lys	Met	Asp	
		35					40					45				
cgc	gtc	cgc	ctc	tgg	gtc	gac	aag	aag	gac	aag	atc	gcc	aag	act	ccg	192
Arg	Val	Arg	Leu	Trp	Val	Asp	Lys	Lys	Asp	Lys	Ile	Ala	Lys	Thr	Pro	
	50					55					60					
aag	tgc	ggc														201
Lys	Cys	Gly														
65																

<210> 20

<211> 67

<212> PRT

<213> Hordeum vulgare

<400> 20

Met	Ala	Lys	Met	Lys	Cys	Thr	Trp	Pro	Glu	Leu	Val	Gly	Lys	Thr	Val
1				5					10					15	
Glu	Lys	Ala	Lys	Lys	Met	Ile	Met	Lys	Asp	Lys	Pro	Glu	Ala	Lys	Ile
			20					25					30		
Met	Val	Leu	Pro	Val	Gly	Thr	Lys	Val	Thr	Gly	Glu	Trp	Lys	Met	Asp
		35					40					45			

Arg Val Arg Leu Trp Val Asp Lys Lys Asp Lys Ile Ala Lys Thr Pro
 50 55 60
 Lys Cys Gly
 65

<210> 21
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Primer based on Hordeum vulgare

<400> 21
 atgaagtcgg tggagaag 18

<210> 22
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Primer based on Hordeum vulgare

<400> 22
 gccgaccctg gggacctg 18

<210> 23
 <211> 459
 <212> DNA
 <213> Zea mays

<220>

<221> CDS

<222> (1)...(288)

<221> misc_feature

<222> (1)...(459)

<223> n = A,T,C or G

<400> 23
 gca gtg caa caa gca aga ttt acc tgc cca tcg atc ata tcg tca act 48
 Ala Val Gln Gln Ala Arg Phe Thr Cys Pro Ser Ile Ile Ser Ser Thr
 1 5 10 15

ggt ccg gca gtt cgc gac acc atg agc tcc acg gag tgc ggc ggc ggc 96
 Gly Pro Ala Val Arg Asp Thr Met Ser Ser Thr Glu Cys Gly Gly Gly
 20 25 30

ggc ggc ggc gcc aag acg tcg tgg cct gag gtg gtc ggg ctg agc gtg 144
 Gly Gly Gly Ala Lys Thr Ser Trp Pro Glu Val Val Gly Leu Ser Val
 35 40 45

gag gac gcc aag aag gtg atg gtc aag gac aag ccg gac gcc gac atc 192
 Glu Asp Ala Lys Lys Val Met Val Lys Asp Lys Pro Asp Ala Asp Ile
 50 55 60

gtg	gtg	ctg	ccc	gtc	ggc	tcc	gtg	gtg	acc	gcg	gat	tat	cgc	cct	aac	240
Val	Val	Leu	Pro	Val	Gly	Ser	Val	Val	Thr	Ala	Asp	Tyr	Arg	Pro	Asn	
65					70				75						80	

cgt	gtc	cgc	atc	ttc	gtc	gac	atc	gtc	gcc	cag	acg	ccc	cac	atc	ggc	288
Arg	Val	Arg	Ile	Phe	Val	Asp	Ile	Val	Ala	Gln	Thr	Pro	His	Ile	Gly	
			85						90					95		

tgataatata	taagctagcc	gctatttccct	ttccttgccc	cagaacttga	aataaatata	348
tatacgatga	aataacgcgg	gcatgccgaa	tanatggant	gtgnntgaat	tctcactaat	408
taagtaatgn	cataaataaa	cgtattcaaa	aaaaaaaaaa	aaaaaaaaaa	a	459

<210> 24
 <211> 96
 <212> PRT
 <213> Zea mays

<400> 24															
Ala	Val	Gln	Gln	Ala	Arg	Phe	Thr	Cys	Pro	Ser	Ile	Ile	Ser	Ser	Thr
1				5					10					15	
Gly	Pro	Ala	Val	Arg	Asp	Thr	Met	Ser	Ser	Thr	Glu	Cys	Gly	Gly	Gly
			20					25					30		
Gly	Gly	Gly	Ala	Lys	Thr	Ser	Trp	Pro	Glu	Val	Val	Gly	Leu	Ser	Val
		35					40					45			
Glu	Asp	Ala	Lys	Lys	Val	Met	Val	Lys	Asp	Lys	Pro	Asp	Ala	Asp	Ile
	50					55					60				
Val	Val	Leu	Pro	Val	Gly	Ser	Val	Val	Thr	Ala	Asp	Tyr	Arg	Pro	Asn
65					70				75					80	
Arg	Val	Arg	Ile	Phe	Val	Asp	Ile	Val	Ala	Gln	Thr	Pro	His	Ile	Gly
				85					90					95	

<210> 25
 <211> 428
 <212> DNA
 <213> Zea mays

<220>
 <221> CDS
 <222> (1)...(303)

<400> 25																
cga	ccc	acg	cgt	ccg	ccc	acg	cgt	ccg	gca	aga	ttt	acc	tgc	cca	tcg	48
Arg	Pro	Thr	Arg	Pro	Pro	Thr	Arg	Pro	Ala	Arg	Phe	Thr	Cys	Pro	Ser	
1				5					10					15		

atc	ata	tcg	tca	act	ggt	ccg	gca	gtt	cgc	gac	acc	atg	agc	tcc	acg	96
Ile	Ile	Ser	Ser	Thr	Gly	Pro	Ala	Val	Arg	Asp	Thr	Met	Ser	Ser	Thr	
			20					25					30			

gag	tgc	ggc	ggc	ggc	ggc	ggc	ggc	gcc	aag	acg	tcg	tgg	cct	gag	gtg	144
Glu	Cys	Gly	Gly	Gly	Gly	Gly	Gly	Ala	Lys	Thr	Ser	Trp	Pro	Glu	Val	
		35					40					45				

gtc	ggg	ctg	agc	gtg	gag	gac	gcc	aag	aag	gtg	atc	ctc	aag	gac	aag	192
Val	Gly	Leu	Ser	Val	Glu	Asp	Ala	Lys	Lys	Val	Ile	Leu	Lys	Asp	Lys	
	50					55					60					

ccg gac gcc gac atc gtg gtg ctg ccc gtc ggc tcc gtg gtg acc gcg 240
 Pro Asp Ala Asp Ile Val Val Leu Pro Val Gly Ser Val Val Thr Ala
 65 70 75 80

gat tat cgc cct aac cgt gtc cgc atc ttc gtc gac atc gtc gcc cag 288
 Asp Tyr Arg Pro Asn Arg Val Arg Ile Phe Val Asp Ile Val Ala Gln
 85 90 95

acg ccc cac atc ggc tgataatata taagctagcc gctatttcct ttccttgccc 343
 Thr Pro His Ile Gly
 100

cagaacttga aataaatata tatacgatga aataacgcgg gcatgccgaa taatggatgt 403
 gtgaaaaaaaa aaaaaaaaaa aaaaa 428

<210> 26
 <211> 101
 <212> PRT
 <213> Zea mays

<400> 26
 Arg Pro Thr Arg Pro Pro Thr Arg Pro Ala Arg Phe Thr Cys Pro Ser
 1 5 10 15
 Ile Ile Ser Ser Thr Gly Pro Ala Val Arg Asp Thr Met Ser Ser Thr
 20 25 30
 Glu Cys Gly Gly Gly Gly Gly Ala Lys Thr Ser Trp Pro Glu Val
 35 40 45
 Val Gly Leu Ser Val Glu Asp Ala Lys Lys Val Ile Leu Lys Asp Lys
 50 55 60
 Pro Asp Ala Asp Ile Val Val Leu Pro Val Gly Ser Val Val Thr Ala
 65 70 75 80
 Asp Tyr Arg Pro Asn Arg Val Arg Ile Phe Val Asp Ile Val Ala Gln
 85 90 95
 Thr Pro His Ile Gly
 100

<210> 27
 <211> 441
 <212> DNA
 <213> Zea mays

<220>
 <221> CDS
 <222> (1)...(255)

<221> misc_feature
 <222> (1)...(441)
 <223> n = A,T,C or G

<400> 27
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 Leu Ile Ile Ala Leu Ser Val Xaa His Arg Gln Pro Ser Thr Met Ser
 1 5 10 15

tcc aca ggc ggc ggc gac gat ggc gcc aag aag tct tgg ccg gaa gtg 96
 Ser Thr Gly Gly Gly Asp Asp Gly Ala Lys Lys Ser Trp Pro Glu Val

20	25	30	
gtc ggg ctc agc ctg gaa gaa gcc aag agg gtg atc ctg tgc gac aag			144
Val Gly Leu Ser Leu Glu Glu Ala Lys Arg Val Ile Leu Cys Asp Lys			
35	40	45	
ccc gac gcc gac atc gtc gtg ctg ccc gtc ggc acg ccg gtg acc atg			192
Pro Asp Ala Asp Ile Val Val Leu Pro Val Gly Thr Pro Val Thr Met			
50	55	60	
gat ttc cgc ccc aac cgc gtc cgc atc ttc gtc gac acc gtc gcg gag			240
Asp Phe Arg Pro Asn Arg Val Arg Ile Phe Val Asp Thr Val Ala Glu			
65	70	75	80
gca mcc cac atc ggc tgagggttaaa tctacaaaat gaatgaytcg gacatgccat			295
Ala Xaa His Ile Gly			
85			
gcgtacntgt ccgtcgccga ataatggatg tgtgtgtgtct tcgatacgttc ctaataagtt			355
gctagtnaaa aataatnggc atcgtcgtta ntgcataaat aaaaagtatc agaataatgt			415
tcaccctttc naaaaaaaaaa aaaaaa			441

<210> 28

<211> 85

<212> PRT

<213> Zea mays

<220>

<221> VARIANT

<222> (1) ... (85)

<223> Xaa = Any Amino Acid

<400> 28

Leu Ile Ile Ala Leu Ser Val Xaa His Arg Gln Pro Ser Thr Met Ser			
1	5	10	15
Ser Thr Gly Gly Gly Asp Asp Gly Ala Lys Lys Ser Trp Pro Glu Val			
20	25	30	
Val Gly Leu Ser Leu Glu Glu Ala Lys Arg Val Ile Leu Cys Asp Lys			
35	40	45	
Pro Asp Ala Asp Ile Val Val Leu Pro Val Gly Thr Pro Val Thr Met			
50	55	60	
Asp Phe Arg Pro Asn Arg Val Arg Ile Phe Val Asp Thr Val Ala Glu			
65	70	75	80
Ala Xaa His Ile Gly			
85			

<210> 29

<211> 382

<212> DNA

<213> Zea mays

<220>

<221> CDS

<222> (1) ... (213)

<221> misc_feature

<222> (1) ... (382)

<223> n = A,T,C or G

<400> 29

gtg	cgt	cgt	cgg	cga	aca	gcc	acc	ggc	ggc	aag	acg	tcg	tgg	ccg	gag	48
Val	Arg	Arg	Arg	Arg	Thr	Ala	Thr	Gly	Gly	Lys	Thr	Ser	Trp	Pro	Glu	
1				5				10						15		

gtg	gtc	ggg	ctg	agc	gtc	gag	gaa	gcc	aag	aag	gtg	att	ctg	gcg	gac	96
Val	Val	Gly	Leu	Ser	Val	Glu	Glu	Ala	Lys	Lys	Val	Ile	Leu	Ala	Asp	
			20					25					30			

aag	ccg	aac	gcc	gac	atc	gtg	gtg	ctg	ccc	acc	acc	acg	cag	gcg	gtg	144
Lys	Pro	Asn	Ala	Asp	Ile	Val	Val	Leu	Pro	Thr	Thr	Thr	Gln	Ala	Val	
		35					40					45				

acc	tcc	gac	ttt	ggg	ttc	gac	cgt	gtc	cgc	gtc	ttc	gtc	ggg	acc	gtc	192
Thr	Ser	Asp	Phe	Gly	Phe	Asp	Arg	Val	Arg	Val	Phe	Val	Gly	Thr	Val	
	50					55					60					

gcc	cag	acg	ccc	cat	gtt	ggc	taggctagag	cctcagccta	gaggtcgctcg	243
Ala	Gln	Thr	Pro	His	Val	Gly				
65					70					

gcaccgccgg	ccatgaccac	ctgctantat	gtcactnact	agtaataaag	tatwaataac	303
aggaggatg	catgctcatc	nttggaatct	gtacgcttgt	tggactacta	cttgggtact	363
tgaaaaaaaa	aaaaaaaaaa					382

<210> 30

<211> 71

<212> PRT

<213> Zea mays

<400> 30

Val	Arg	Arg	Arg	Arg	Thr	Ala	Thr	Gly	Gly	Lys	Thr	Ser	Trp	Pro	Glu	
1				5				10						15		
Val	Val	Gly	Leu	Ser	Val	Glu	Glu	Ala	Lys	Lys	Val	Ile	Leu	Ala	Asp	
			20					25					30			
Lys	Pro	Asn	Ala	Asp	Ile	Val	Val	Leu	Pro	Thr	Thr	Thr	Gln	Ala	Val	
		35					40				45					
Thr	Ser	Asp	Phe	Gly	Phe	Asp	Arg	Val	Arg	Val	Phe	Val	Gly	Thr	Val	
	50					55					60					
Ala	Gln	Thr	Pro	His	Val	Gly										
65					70											

<210> 31

<211> 448

<212> DNA

<213> Zea mays

<220>

<221> CDS

<222> (1) ... (240)

<221> misc_feature

<222> (1) ... (448)

<223> n = A,T,C or G

<400> 31
cga ttt agc tat agc agg tct cga tcg gcg gcc atg agc ggt agc cgc 48
Arg Phe Ser Tyr Ser Arg Ser Arg Ser Ala Ala Met Ser Gly Ser Arg
1 5 10 15
agc aag aag tcg tgg ccg gag gtg gag ggg ctg ccg tcc gag gtg gcc 96
Ser Lys Lys Ser Trp Pro Glu Val Glu Gly Leu Pro Ser Glu Val Ala
20 25 30
aag cag aaa att ctg gcc gac cgc ccg gac gtc cag gtg gtc gtt ctg 144
Lys Gln Lys Ile Leu Ala Asp Arg Pro Asp Val Gln Val Val Val Leu
35 40 45
ccc gac ggc tcc ttc gtc acc act gat ttc aac gac aag cgc gtc cgg 192
Pro Asp Gly Ser Phe Val Thr Thr Asp Phe Asn Asp Lys Arg Val Arg
50 55 60
gtc ttc gtc gac aac gcc gac aac gtc gcc aaa gtc ccc aag atc ggc 240
Val Phe Val Asp Asn Ala Asp Asn Val Ala Lys Val Pro Lys Ile Gly
65 70 75 80
tagctagcta gctaggccca atcggttctaa tcagctagtt tctttctttc ataaataaaa 300
gtcctctctc gtaccgagac tgtgatgttt ccctagttgt ctcgtacgtg ttgttttctg 360
tcttaatgga tgccatggcg cccgcgcgcg cctycatcat gaaaagctac atttgaaacg 420
attnnagta ttctttgctg ttaaaaaa 448

<210> 32
<211> 80
<212> PRT
<213> Zea mays

<400> 32
Arg Phe Ser Tyr Ser Arg Ser Arg Ser Ala Ala Met Ser Gly Ser Arg
1 5 10 15
Ser Lys Lys Ser Trp Pro Glu Val Glu Gly Leu Pro Ser Glu Val Ala
20 25 30
Lys Gln Lys Ile Leu Ala Asp Arg Pro Asp Val Gln Val Val Val Leu
35 40 45
Pro Asp Gly Ser Phe Val Thr Thr Asp Phe Asn Asp Lys Arg Val Arg
50 55 60
Val Phe Val Asp Asn Ala Asp Asn Val Ala Lys Val Pro Lys Ile Gly
65 70 75 80

<210> 33
<211> 67
<212> PRT
<213> Artificial Sequence

<220>
<223> consensus sequence

<221> VARIANT
<222> (1)...(67)
<223> Xaa = Any Essential Amino Acid

<400> 33
Xaa Xaa Xaa Xaa Lys Xaa Xaa Trp Pro Glu Leu Val Gly Lys Xaa Val
1 5 10 15
Glu Xaa Ala Asp Asp Xaa Ile Xaa Xaa Asp Lys Pro Glu Ala Xaa Ile
20 25 30
Xaa Val Leu Pro Val Gly Thr Xaa Val Xaa Xaa Xaa Xaa Xaa Xaa Asp
35 40 45
Xaa Val Xaa Leu Xaa Val Asp Lys Xaa Asp Xaa Xaa Ala Xaa Xaa Pro
50 55 60
Xaa Xaa Gly
65

<210> 34
<211> 67
<212> PRT
<213> Artificial Sequence

<220>
<223> consensus sequence

<221> VARIANT
<222> (1)...(67)
<223> Xaa = Any Essential Amino Acid

<400> 34
Xaa Xaa Xaa Xaa Lys Xaa Xaa Trp Pro Glu Leu Val Gly Lys Xaa Xaa
1 5 10 15
Glu Xaa Ala Lys Lys Xaa Ile Xaa Xaa Asp Lys Pro Xaa Ala Xaa Ile
20 25 30
Xaa Val Leu Pro Xaa Gly Thr Xaa Val Xaa Xaa Xaa Xaa Xaa Xaa Xaa
35 40 45
Xaa Val Xaa Leu Xaa Xaa Asp Lys Xaa Asp Xaa Xaa Ala Xaa Xaa Pro
50 55 60
Xaa Xaa Gly
65

<210> 35
<211> 65
<212> PRT
<213> Hordeum vulgare

<400> 35
Gly Ala Lys Thr Ser Trp Pro Glu Val Val Gly Met Ser Ala Glu Lys
1 5 10 15
Ala Lys Glu Ile Ile Leu Arg Asp Lys Pro Asn Ala Gln Ile Glu Val
20 25 30
Ile Pro Val Asp Ala Met Val Pro Leu Asn Phe Asn Pro Asn Arg Val
35 40 45
Phe Val Leu Val His Lys Ala Thr Thr Val Ala Glx Val Ser Arg Val
50 55 60
Gly
65

<210> 36
<211> 62
<212> PRT

<213> Hordeum vulgare

<400> 36

Gly	Ala	Lys	Thr	Glu	Trp	Pro	Glu	Leu	Val	Gly	Cys	Thr	Ile	Lys	Glu
1				5					10					15	
Ala	Lys	Glu	Lys	Ile	Lys	Ala	Asp	Arg	Pro	Asp	Leu	Lys	Val	Val	Ile
			20				25						30		
Val	Pro	Val	Gly	Ser	Ile	Val	Thr	Gln	Glu	Ile	Asp	Leu	Asn	Arg	Val
		35					40					45			
Arg	Val	Trp	Val	Asp	Lys	Val	Ala	Lys	Val	Pro	Lys	Ile	Gly		
	50					55					60				

<210> 37

<211> 62

<212> PRT

<213> Zea mays

<400> 37

Gly	Ala	Lys	Thr	Ser	Trp	Pro	Glu	Val	Val	Gly	Leu	Ser	Val	Glu	Asp
1				5					10					15	
Ala	Lys	Lys	Val	Ile	Leu	Lys	Asp	Lys	Pro	Asp	Ala	Asp	Ile	Val	Val
			20				25						30		
Leu	Pro	Val	Gly	Ser	Val	Val	Thr	Ala	Asp	Tyr	Arg	Pro	Asn	Arg	Val
		35					40					45			
Arg	Ile	Phe	Val	Asp	Ile	Val	Ala	Gln	Thr	Pro	His	Ile	Gly		
	50					55					60				

<210> 38

<211> 62

<212> PRT

<213> Vicia faba

<400> 38

Arg	Thr	Ser	Trp	Pro	Glu	Leu	Val	Gly	Val	Ser	Ala	Glu	Glu	Ala	Arg
1				5					10					15	
Lys	Ile	Lys	Glu	Glu	Met	Pro	Glu	Ala	Glu	Ile	Gln	Val	Val	Pro	Gln
			20				25						30		
Asp	Ser	Phe	Val	Thr	Ala	Asp	Tyr	Lys	Phe	Gln	Arg	Val	Arg	Leu	Tyr
		35					40					45			
Val	Asp	Glu	Ser	Asn	Lys	Val	Val	Arg	Ala	Ala	Pro	Ile	Gly		
	50					55					60				

<210> 39

<211> 66

<212> PRT

<213> Cucurbita maxima

<400> 39

Ala	Glu	Lys	Ser	Ser	Trp	Pro	Glu	Leu	Val	Gly	Glu	Asp	Gly	Glu	Glu
1				5						10				15	
Ala	Val	Lys	Ile	Ile	Gln	Gln	Glu	Asn	Pro	Ser	Leu	Asp	Val	Ile	Leu
			20				25						30		
Met	Pro	Arg	Gly	Gln	Asn	Trp	Ala	Thr	Leu	Asp	Cys	Arg	Pro	Asn	Arg
		35					40					45			
Val	Arg	Val	Phe	Asn	Asp	Glu	Ser	Gly	Lys	Val	Asn	Ser	Ile	Pro	Arg
	50					55					60				

Ile Gly

<210> 40
 <211> 64
 <212> PRT
 <213> Canavalia lineata

<400> 40
 Thr Arg Lys Thr Ser Trp Pro Glu Leu Val Gly Val Thr Ala Glu Glu
 1 5 10 15
 Ala Glu Lys Ile Lys Glu Glu Met Ser Gly Val Glu Ile Gln Val Val
 20 25 30
 Pro Pro Gly Ser Phe Val Thr Ala Asp Tyr Lys Pro Gln Arg Val Arg
 35 40 45
 Leu Tyr Val Asp Glu Ser Asn Lys Val Thr Arg Thr Pro Gly Ile Gly
 50 55 60

<210> 41
 <211> 65
 <212> PRT
 <213> Vigna angularis

<400> 41
 Pro Thr Lys Thr Ser Trp Pro Glu Leu Val Gly Val Thr Ala Glu Gln
 1 5 10 15
 Ala Glu Thr Lys Ile Lys Glu Glu Met Val Asp Val Gln Ile Gln Val
 20 25 30
 Ser Pro His Asp Ser Phe Val Thr Ala Asp Tyr Asn Pro Lys Arg Val
 35 40 45
 Arg Lys Tyr Val Asp Glu Ser Asn Lys Val Thr Arg Thr Pro Ser Ile
 50 55 60
 Gly
 65

<210> 42
 <211> 66
 <212> PRT
 <213> Nicotiana tabacum

<400> 42
 Val Thr Lys Glu Arg Trp Pro Glu Leu Leu Gly Thr Pro Ala Lys Phe
 1 5 10 15
 Ala Met Gln Ile Ile Gln Lys Glu Asn Pro Lys Leu Thr Asn Val Gln
 20 25 30
 Thr Val Leu Asn Gly Thr Pro Val Thr Glu Asp Leu Arg Cys Asn Arg
 35 40 45
 Val Arg Leu Phe Val Asn Val Leu Asp Phe Val Val Gln Thr Pro Gln
 50 55 60
 Val Gly
 65

<210> 43
 <211> 66
 <212> PRT
 <213> Nicotiana sylvestris

<400> 43

Asn	Lys	Lys	Glu	Thr	Trp	Pro	Glu	Leu	Ile	Gly	Val	Pro	Ala	Lys	Phe
1				5					10					15	
Ala	Arg	Glu	Ile	Ile	Gln	Lys	Glu	Asn	Ser	Lys	Leu	Thr	Asn	Val	Pro
			20					25					30		
Ser	Val	Leu	Asn	Gly	Ser	Pro	Val	Thr	Lys	Asp	Phe	Arg	Cys	Glu	Arg
		35					40					45			
Val	Arg	Leu	Phe	Val	Asn	Val	Leu	Asp	Phe	Val	Val	Gln	Ile	Pro	Arg
	50					55					60				
Val	Gly														
65															

<210> 44
 <211> 65
 <212> PRT
 <213> Sambucus nigra

Val	Gly	Lys	Asn	Thr	Trp	Pro	Glu	Leu	Cys	Gly	Ala	Arg	Gly	Glu	Glu
1				5					10					15	
Ala	Ala	Ala	Thr	Val	Glu	Thr	Glu	Asn	Pro	Ser	Val	Thr	Ala	Val	Ile
			20					25					30		
Val	Pro	Glu	Gly	Ser	Ile	Val	Thr	Thr	Asp	Glu	Arg	Cys	Asp	Arg	Val
		35					40					45			
Arg	Val	Trp	Val	Asp	Glu	Asn	Gly	Ile	Val	Thr	Arg	Val	Pro	Val	Ile
	50					55					60				
Gly															
65															

<210> 45
 <211> 65
 <212> PRT
 <213> Momordica charantia

Gln	Gly	Lys	Ser	Ser	Trp	Pro	Gln	Leu	Val	Gly	Ser	Thr	Gly	Ala	Ala
1				5					10					15	
Ala	Lys	Ala	Val	Ile	Glu	Arg	Glu	Asn	Pro	Arg	Val	Arg	Ala	Val	Ile
			20					25					30		
Ile	Lys	Val	Gly	Ser	Gly	Ala	Thr	Lys	Asp	Phe	Arg	Cys	Asp	Arg	Val
		35					40					45			
Arg	Val	Trp	Val	Thr	Glu	Arg	Gly	Ile	Val	Ala	Arg	Pro	Pro	Thr	Ile
	50					55					60				
Gly															
65															

<210> 46
 <211> 65
 <212> PRT
 <213> Cucurbita maxima

Pro	Gly	Lys	Ser	Ser	Trp	Pro	His	Leu	Val	Gly	Val	Gly	Gly	Ser	Val
1				5					10					15	
Ala	Lys	Ala	Ile	Glu	Arg	Gln	Asn	Pro	Asn	Val	Lys	Ala	Val	Ile	
			20				25					30			
Leu	Glu	Glu	Gly	Thr	Pro	Val	Thr	Lys	Asp	Phe	Arg	Cys	Asn	Arg	Val
		35					40					45			

Arg Ile Trp Val Asn Lys Arg Gly Leu Val Val Ser Pro Pro Arg Ile
 50 55 60
 Gly
 65

<210> 47
 <211> 66
 <212> PRT
 <213> Solanum tuberosum

<400> 47
 Asp Gly Lys Leu Gln Trp Pro Glu Leu Ile Gly Val Pro Thr Lys Leu
 1 5 10 15
 Ala Lys Glu Ile Ile Glu Lys Gln Asn Ser Leu Ile Ser Asn Val His
 20 25 30
 Ile Leu Leu Asn Gly Ser Pro Val Thr Met Asp Phe Arg Cys Asn Arg
 35 40 45
 Val Arg Leu Phe Asp Asp Ile Leu Gly Ser Val Val Gln Ile Pro Arg
 50 55 60
 Val Ala
 65

<210> 48
 <211> 66
 <212> PRT
 <213> Solanum tuberosum

<400> 48
 Asn Gly Lys Leu Ser Trp Pro Glu Leu Ile Gly Val Pro Ala His Tyr
 1 5 10 15
 Ala Lys Gly Ile Ile Glu Lys Glu Asn Ser Leu Ile Thr Asn Val Gln
 20 25 30
 Ile Leu Leu Asn Gly Ser Pro Val Thr Met Asp Tyr Arg Cys Asn Arg
 35 40 45
 Val Arg Leu Phe Asp Asn Ile Leu Gly Asp Val Val Gln Ile Pro Arg
 50 55 60
 Val Ala
 65

<210> 49
 <211> 66
 <212> PRT
 <213> Lycopersicon peruvianum

<400> 49
 Lys Gly Lys Gln Phe Trp Pro Glu Leu Ile Gly Val Pro Ala Leu Tyr
 1 5 10 15
 Ala Lys Gly Ile Ile Glu Lys Glu Asn Pro Ser Ile Thr Asn Ile Pro
 20 25 30
 Ile Leu Leu Asn Gly Ser Pro Val Thr Lys Asp Phe Arg Cys Asp Arg
 35 40 45
 Val Arg Leu Phe Val Asn Ile Leu Gly Asp Val Val Gln Ile Pro Arg
 50 55 60
 Val Thr
 65

<210> 50

<211> 66
<212> PRT
<213> Lycopersicon esculentum

<400> 50
Val Thr Lys Glu Ser Trp Pro Glu Leu Leu Gly Thr Pro Ala Lys Phe
1 5 10 15
Ala Lys Gln Ile Ile Gln Lys Glu Asn Pro Lys Leu Thr Asn Val Glu
20 25 30
Thr Leu Leu Asn Gly Ser Ala Phe Thr Glu Asp Leu Arg Cys Asn Arg
35 40 45
Val Arg Leu Phe Val Asn Leu Leu Asp Ile Val Val Gln Thr Pro Lys
50 55 60
Val Gly
65

<210> 51
<211> 66
<212> PRT
<213> Lycopersicon esculentum

<400> 51
Glu Gly Lys Gln Met Trp Pro Glu Leu Ile Gly Val Pro Thr Lys Leu
1 5 10 15
Ala Lys Glu Ile Ile Glu Lys Glu Asn Pro Ser Ile Thr Asn Ile Pro
20 25 30
Ile Leu Leu Ser Gly Ser Pro Ile Thr Leu Asp Tyr Leu Cys Asp Arg
35 40 45
Val Arg Leu Phe Asp Asn Ile Leu Gly Phe Val Val Gln Met Pro Val
50 55 60
Val Thr
65

<210> 52
<211> 65
<212> PRT
<213> Amaranthus caudatus

<400> 52
Pro Gly Lys Gln Glu Trp Pro Glu Leu Val Gly Glu Tyr Gly Tyr Lys
1 5 10 15
Ala Ala Ala Ile Ile Glu Arg Glu Asn Pro Asn Val Arg Ser Ile Val
20 25 30
Lys His Glu Arg Ser Gly Phe Thr Lys Asp Phe Arg Cys Asp Arg Val
35 40 45
Trp Val Val Val Asp Ser Thr Gly Val Val Val Arg Thr Pro Arg Val
50 55 60
Thr
65

<210> 53
<211> 65
<212> PRT
<213> Arabidopsis thaliana

<400> 53
Val Ile Phe Asn Ser Trp Ser Val Leu Thr Gly Thr Asn Gly Asp Tyr

1	5	10	15												
Ala	Ala	Val	Val	Ile	Glu	Arg	Glu	Asn	Pro	Thr	Val	Asn	Ala	Ala	Val
	20						25						30		
Ile	Leu	Asp	Gly	Ser	Pro	Val	Thr	Ala	Asp	Phe	Arg	Cys	Asp	Arg	Val
	35					40				45					
Arg	Val	Phe	Val	Asp	Gly	Asn	Arg	Ile	Val	Val	Lys	Thr	Pro	Lys	Ser
	50					55					60				

Gly
65

<210> 54
 <211> 104
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> oligonucleotide

<400> 54
 catgaagctg aagacagagt ggccggagtt ggtggggaaa tcggtggaga aagccaagaa 60
 ggtgatacctg aaggacaagc cagagggcga aatcatagtt ctgc 104

<210> 55
 <211> 106
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> oligonucleotide

<400> 55
 caaccggcag aactatgatt tgcgcctctg gcttgctctt caggatcacc ttcttggtt 60
 tctccaccga tttccccacc aactccggcc actctgtctt cagctt 106

<210> 56
 <211> 94
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> oligonucleotide

<400> 56
 cggttggtac aaaggtgacg aaggaatata agatcgaccg cgtcaagctc tttgtggata 60
 aaaaggacaa catcgcgacg gtccccaggg tcgg 94

<210> 57
 <211> 92
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> oligonucleotide

<400> 57
 ctagccgacc ctggggacct gcgcgatgtt gtccttttta tccacaaaga gcttgacgag 60
 gtgcatactta tattccttcg tcacctttgt ac 92

<210> 58
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> oligonucleotide

 <400> 58
 gtactagtca tgaagctgaa gacaga 26

 <210> 59
 <211> 28
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> oligonucleotide

 <400> 59
 gagaagcttg ctagccgacc ctggggac 28

 <210> 60
 <211> 23
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> oligonucleotide

 <400> 60
 tttttttcat gaagctgaag aca 23

 <210> 61
 <211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> oligonucleotide

 <400> 61
 tttttttctg aggctagccg accctgggga 30

 <210> 62
 <211> 35
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> oligonucleotide

 <400> 62
 atcgacaagg tcaagctttt tgtggataaa aagga 35

<210> 63
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide

<400> 63
cacctttgta ccaaccggta gaactatgat ttgcgc 36

<210> 64
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide

<400> 64
gttggtacaa aggtggcgaa ggcctataag atcgacaagg tcaag 45

<210> 65
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide

<400> 65
ttttttctcg aggctagccg accctgggga cctgcgcta 39

<210> 66
<211> 46
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide

<400> 66
ccggttggtgta caaagggtggg taagcattat aagatcgaca aggtca 46

<210> 67
<211> 46
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide

<400> 67
agcttgacct tgtcgatctt ataatgctta cccacctttg taccaa 46

<210> 68

<211> 82
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> oligonucleotide

 <400> 68
 tttttttcat gaagtcggtg gagaagaaac cgaaggggtgt gaagacaggt gcgggtgaca 60
 agcataagct gaagacagag tg 82

 <210> 69
 <211> 46
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> oligonucleotide

 <400> 69
 ccggttggtgta caaaggtgac gggcgaatac aagatcgacc gcgtca 46

 <210> 70
 <211> 46
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> oligonucleotide

 <400> 70
 agcttgacgc ggtcgatctt gtattcgccc gtcacctttg taccaa 46

 <210> 71
 <211> 36
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> oligonucleotide

 <400> 71
 ccggtgaatg gaagatggat cgcgtccgcc tctggg 36

 <210> 72
 <211> 36
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> oligonucleotide

 <400> 72
 tcgaccbaga ggcggacgcg atccatcttc cattca 36

 <210> 73
 <211> 43

<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide

<400> 73
ttttttccat ggctaagatg aagtgcacgt ggcctgagct ggt 43

<210> 74
<211> 44
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide

<400> 74
ttttttaagc ttggatccct agccgcactt cggagtcttg gcga 44